

#### ABSTRACT OF THE DISCLOSURE

A sensor network has a plurality of resistors connected to row lines and column lines in a matrix. A monitoring resistor is connected between ends of two adjacent row lines. One of the row lines is connected to a pull-up resistor and the other row line is grounded to form a series circuit. When a voltage is applied to the series circuit, a voltage across the monitoring resistor is inputted to an ECU. If the circuit is in the shorted condition, the voltage across the monitoring resistor is 0. If the circuit is in the open condition, the voltage is equal to the voltage applied to the circuit. If no failure is present in the series circuit, the voltage is equal to the divided voltage. Failure detection in column lines is performed in the same manner as the row lines.

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